Examining the Effect of Technology on the Earning Power of Disabled People

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The Story

Social norms and expectations cause people to believe disabled people produce less quality and quantity of work in the same amount of time as their non-disabled counterpart. This discrimination causes these workers to get paid less and have lowered income, job mobility and job retention.

Research

This project examines if computer use in the workplace increases disabled earnings. This study uses Ordinary Least Squares (OLS), Heckman-probit, and Heckman-OLS regressions to examine if computer use in the workplace increased disabled earnings[1]. The data used is from the Bureau of Labor Statistics (CPS) and ranges from 2011 to 2015 bi-yearly.

Economic Models

\[
\text{LogHourlyWage} = \beta_0 + \beta_1 \text{Disabled} + \beta_2 \text{Age} + \beta_3 \text{Age}^2 \\
+ \beta_4 \text{Education} + \beta_5 \text{Race} + \beta_6 \text{Gender} + \beta_7 \text{Married} \\
+ \beta_8 \text{Bureau} + \beta_9 \text{State} \text{dummies} + \beta_{10} \text{Year} \text{dummies} + \epsilon
\]

\[
\text{LogHourlyWage} = \beta_1 + \beta_2 \text{Blind} + \beta_3 \text{Deaf} + \beta_4 \text{Memory} + \beta_5 \text{Physical} + \beta_6 \text{Self Care} + \beta_7 \text{Errands} \\
+ \beta_8 \text{Age} + \beta_9 \text{Age}^2 + \beta_10 \text{Education} + \beta_11 \text{Race} + \beta_12 \text{Gender} \\
+ \beta_13 \text{Married} + \beta_14 \text{Bureau} + \beta_15 \text{State} \text{dummies} + \beta_{16} \text{Year} \text{dummies} + \epsilon
\]

Figure 3. Two models used to confirm the assumption that disability has a significant effect on wage.

The two models shown above were used in to confirm the assumptions the model was based on. Since the disability variable didn’t have a significant effect on Log Hourly Wage in the OLS regressions the Heckman Selection model was used. The two models below were used to analyze the effect of computer use on disabled earnings. Both sets of models (above and below) use a general disability in one model and specific disability terms in the other. The set of models below also includes computer use and computer use interaction term variables.

\[
\text{LogHourlyWage} = \beta_1 + \beta_2 \text{Computer} \text{Use} + \beta_3 \text{Disabled} + \beta_4 \text{Disabled} \times \text{Computer} \text{Use} \\
+ \beta_5 \text{Age} + \beta_6 \text{Age}^2 + \beta_7 \text{Education} + \beta_8 \text{Race} + \beta_9 \text{Gender} \\
+ \beta_{10} \text{Married} + \beta_{11} \text{Bureau} + \beta_{12} \text{State} \text{dummies} + \beta_{13} \text{Year} \text{dummies} + \epsilon
\]

Figure 4. Two models used to confirm the hypothesis.

Results

Results found showed significance in one interaction term between a specific disability term. When disabled people with selfcare issues used computer in the workplace they earned However, the general disability and computer use interaction term and the rest of the specific disability interaction terms did not show any significant results.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Regression Results</th>
<th>Significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Use</td>
<td>0.173</td>
<td>✓</td>
</tr>
<tr>
<td>Deaf*Computer Use</td>
<td>0.015</td>
<td>✗</td>
</tr>
<tr>
<td>Blind*Computer Use</td>
<td>-0.148</td>
<td>✗</td>
</tr>
<tr>
<td>Memory*Computer Use</td>
<td>0.038</td>
<td>✗</td>
</tr>
<tr>
<td>Physical*Computer Use</td>
<td>-0.067</td>
<td>✗</td>
</tr>
<tr>
<td>Selfcare*Computer Use</td>
<td>0.586</td>
<td>✓</td>
</tr>
<tr>
<td>Errands*Computer Use</td>
<td>0.022</td>
<td>✗</td>
</tr>
</tbody>
</table>

Figure 5. Table summarizing statistically significant results.

Conclusions

There is no economic or other rational theory that can explain the relationship between computer use by selfcare disabled workers and increased earnings. These results are not strong enough to support computer use in the work place as a accommodative technology to increase disabled earning power. No policy implications can be made. Further research should be done into what kind of jobs these “selfcare” disabled people have.

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References